

Suggested Session: Snow and Glaciers

ERS-1 RADAR INTERFEROMETRY OVER AN ICE STREAM IN NORTHEAST GREENLAND

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Interferometric fringes observed over an ice stream are expressions of surface relief as well as motion of the ice stream. Here, we describe a procedure for separation of the surface relief from ice stream motion. Assuming that the velocity is constant over the interval of observation, the fringes due to motion can be removed by **differencing** repeat pass **interferograms** formed from three separate radar observations of the ice stream. The resultant topography-only interferogram can then be scaled and subtracted from one of the mixed motion/topography interferograms to obtain motion only **fringe**. The observed line of sight motion are due to the vertical and horizontal components of ~~of~~ the flow field over the **surface** relief. The contribution of these components to the **interferometrically** observed motion are dependent on the look direction, the surface relief and direction of flow relative to the look direction. The observed motion can be decomposed **into** a the **two** components if we have [?] an estimate of the direction of flow because the look direction is known and surface relief can be derived **interferometrically**. We illustrate the procedure herein with a time-series of ERS-1 images over an ice stream in northeast Greenland.